Multidisciplinary PhD Program in Biomedical Science
Graduate School of Biomedical Sciences - Newark Campus

Candidacy Examination for Entry into Thesis Phase

Before progressing to the thesis phase of their doctoral studies, all students must pass a Candidacy Examination (formerly referred to as Qualifying Examination). In order to qualify for thesis phase, doctoral students must also complete 40 credits of combined coursework and research, including the specific requirements defined by their program and/or track. They must have an overall GPA of 3.0 or greater. Approved transfer credits will count towards the required 40 credits.

The purpose of the exam is to evaluate the student's preparedness to apply and synthesize the knowledge acquired during their graduate studies in the context of their proposed thesis research project. The evaluation should address:

- Understanding of relevant biomedical science topics related to the proposed research.
- Knowledge of the literature and ability to integrate those concepts into the research plan.
- Viability of the research proposal and ability to explain the project aims.
- Familiarity with planned experimental approaches and interpretation of results.

The candidacy examination is expected to occur in April to June of the student's second year, although it may occur later with permission of the track director. Each track will set a deadline date for submission of the written component by all students in the track. The tracks in the Multidisciplinary PhD Program in Biomedical Science will follow a consistent candidacy examination format. The candidacy examination will incorporate the Thesis Proposal, which will provide a background, rationale and plan of experimental design that is to be pursued in the intended mentor's laboratory. This is expected to result in a robust thesis proposal that can also be utilized as the foundation of an individual fellowship application.

The candidacy examination will follow the format below.

First part: a research proposal using the format of a research grant, with Specific Aims, Significance (which includes extended background) and Approach (which included Preliminary Data and Experimental Design). The text of the written proposal should be a maximum of 10 pages, single-spaced, excluding references. In addition, there should be an abstract in the NIH format (30 lines). The overall proposal should follow the layout of the research component of a NIH NRSA fellowship grant, except that the background section is expected to be more extensive and show knowledge of the breadth of literature underlying the proposed research. Writing this section will help the student develop a comprehensive background for their thesis work. The preliminary data section should include only original data generated by the student. It should be noted that there is no requirement for the student to have preliminary data, but it is encouraged where possible. Work from others in the lab or from published papers supporting the proposed hypothesis/aims can be included in the background section (with appropriate attribution). A minimum of two aims should be proposed by the student for their planned thesis research. While it is recognized that all of the aims will be related to the research focus of the mentor's lab, there should be at least one subaim that represents a new direction not already encompassed in the mentor's or other faculty members' current or pending research grants.

Prior to writing the Candidacy Examination proposal, the student will develop the Specific Aims page that has been approved by the mentor. This Specific Aims page will be shared with the Track Director and Class Advisor in March to be used to assemble the Candidacy Examination Committee. The subsequent preparation of the full written proposal should proceed with assistance from the mentor, however, the mentor should not write the document and it should not be extracted from previous grants. The completed proposal must be accompanied by a form on relative

contributions to the ideas and writing, and will be signed by both the student and mentor. The student is expected to spend no more than 4 weeks writing the proposal, typically during March-May of their second year.

It should be noted that the specific aims may change/evolve/refine as science moves forward. However, after the proposal is sent to the committee, the student should not change the proposal. The committee should not give direct feedback prior to the exam; serious flaws or comments should be shared only with the committee chair. All other comments will be discussed at the exam.

Second part: an oral presentation by the student to their Candidacy Examination Committee. The presentation should be no more than 20 minutes. During this presentation the student will be expected to describe and explain their proposed research project and answer questions from the committee members. The committee is charged with gauging the competency and preparedness of the student to undertake research work at a doctoral level. The oral exam should be completed by the end of June of the second year.

Students are encouraged to practice their presentation and answer questions with other students and/or lab members prior to the oral exam.

The Candidacy Examination Committee for each student will be appointed by the Track Oversight Committee. It will have 4 voting members, including the Class Advisor or her/his designee, who will chair the examination committee. This will help to ensure consistency across examinations. The remaining 3 members of the examination committee should have appropriate expertise and experience relevant to the student's chosen subject matter. At least one member should be from outside of the mentor’s home department or center/institute. The student's prospective mentor may attend the oral examination, but cannot participate in the questions, discussion or voting. However, the mentor can request a break, with the student temporarily excused from the meeting, if he/she wishes to convey a concern or provide key information to the examination committee. It is expected that a pass in the Candidacy Examination should generally be by unanimous consent of all voting members of the committee. In the case of a tie vote, the final decision will be made by the Senior Associate Dean, with input from the committee members. The committee can also recommend a conditional pass, setting specific tasks that the candidate must complete, which can include a repeat of the oral examination. If the student fails the initial candidacy examination, the student will be given the opportunity to rewrite the research proposal and repeat the oral presentation. Reexamination must take place within 3 months of the first examination.